The Public in the Picture / Das Publikum im Bild
Involving the Beholder in Antique, Islamic, Byzantine and Western Medieval and Renaissance Art / Beiträge aus der Kunst der Antike, des Islam, aus Byzanz und dem Westen

Bilder
Diskurs

Edited by / Herausgegeben von **Ulrich Pfisterer**

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Involving the Beholder in Antique, Islamic, Byzantine and Western Medieval and Renaissance Art / Beiträge aus der Kunst der Antike, des Islam, aus Byzanz und dem Westen

Edited by / Herausgegeben von

Beate Fricke and / und **Urte Krass**

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Christopher Lakey

From Place to Space *Raumkästen* and the Moving Spectator in Medieval Italian Art*

"locus enim in spatio est quod longitudine
et latitudine et altitudine corporis occupatur"
~Augustine, Questio XX. *De loco dei*[1]

Introduction

In the 1920s Erwin Panofsky developed a teleology of pictorial space that is now one of the definitive histories of perspective for a broad range of disciplines, including the history of art and the history of science. This history is most vividly present in his early writings, particularly in his essay *Perspective as Symbolic Form* (1924).[2] In this text, monumental public art – both architectural sculpture and large format painting – from the eleventh century through the fourteenth century plays a crucial role, driving stylistic changes from antique wall painting to illusionistic painting in the Renaissance by spurring the emergence of bodies in three-dimensional space.[3] Panofsky claimed this change occurred for the first time in the Gothic era with the emergence of what he calls the *Raumkasten* ("space-box"), a stage-like place in which three-dimensional bodies exist independent (or

* All translations are my own unless otherwise noted. I would like to thank the editors of this volume, Beate Fricke and Urte Krass, for their helpful comments and suggestions. Additionally, I would like to extend my gratitude to Joseph Ackley, Timothy Grundy, and Ann Woodward for assisting me with different aspects of this essay.

1 Saint Augustine, *De diversis quaestionibus octoginta tribus*, CCSL 44A (Turnholt 1975), p. 25.

2 Erwin Panofsky, *Perspective as Symbolic Form*, trans. Christopher S. Wood (New York 1991); originally published as "Die Perspektive als 'symbolische Form,'" *Vorträge der Bibliothek Warburg 1924–1925* (Leipzig 1927), pp. 258–330. Panofsky also presents this teleology in *Die deutsche Plastik des elften bis dreizehnten Jahrhunderts* (Munich 1924).

3 The influence of Panofsky's essay on perspective cannot be overstated and a number of significant writers have responded both positively and negatively to his arguments. See especially John White, *The Birth and Rebirth of Pictorial Space* (London 1957); Rudolf Arnheim, *Art and Visual Perception: A Psychology of the Creative Eye* (Berkeley 1971); Nelson Goodman, *Languages of Art* (Indianapolis 1976); Hubert Damisch, *The Origin of Perspective*, trans. John Goodman (Cambridge, Mass. 1995), especially pp. 3–55.

1 Giotto, *Last Supper*, c. 1305, fresco, Arena Chapel, Padua.

almost independent) of surface or background.[4] Panofsky illustrated this concept most persuasively with the *Last Supper* relief on the west choir screen of Naumburg Cathedral (c. 1240),[5] and, importantly, found a formal expansion of this during the Trecento, for example in Giotto's *Last Supper* at the Arena Chapel, Padua (c. 1305) (fig. 1).

In his account of the history of perspective from antiquity through the Renaissance, Panofsky found structural parallels in the philosophical and theological accounts of space for each period. Though he has been both criticized and praised for this analytic maneuver,[6] in the present essay I suggest that one way to better understand how the

4 "Space-box" is Christopher Wood's translation of *Raumkasten* in *Perspektive als symbolische Form*. For a recent account and revision of Panofsky's concept of the *Raumkasten*, see Wolfgang Kemp's important contribution to the history of space in late medieval and early modern painting, *Die Räume der Maler: Zur Bilderzählung seit Giotto* (Munich 1996). Kemp's concept of the *chronotopos* addresses the creation of architectural constructions in paintings and their relation to the unfolding narrative temporality.

5 On the sculptural program on the west choir screen at Naumburg, see Jacqueline E. Jung, *The Gothic Screen: Space, Sculpture, and Community in the Cathedrals of France and Germany, ca. 1200–1400* (Cambridge 2013).

6 Important accounts of this essay include: Michael Ann Holly, *Panofsky and the Foundations of Art History* (Ithaca 1984), pp.114–157; Christopher Wood, "Introduction" to *Perspective as Symbolic Form*,

broad history he sketches can be useful is in understanding the conceptual relationship between space and place and how it involves a moving beholder in the Middle Ages. To do so is to recognize that Panofsky's art historical project during this period was hermeneutic. It involved the problem of amalgamating different intellectual horizons and cultural systems of the past and the present in order to better understand how art mediates one's experience of the world as a "symbolic form," after Ernst Cassirer.[7] But in a history of style that doubles as an extended metaphor of philosophical perspectivism, one that never addresses the historical topographies of beholding, what role does the audience serve? Or, to put it the other way around, how can we understand Panofsky's theory of art making in the Middle Ages in concert with a historical understanding of how art served the public for which it was made? In this essay, I argue that expanding Panofsky's concept of the *Raumkasten* into the public sphere can collapse this problem and allow for a consideration of how medieval attitudes toward space, place, and the divine were mediated *via* the relationship between representational models and audience.

Place, Space, Perspective

The relationship between place (*locus*) and space (*spatio*) in the Middle Ages has been the focus of a number of recent studies specifically concerned with the concept of place in relation to our modern notion of space (i.e. cosmic, infinite space).[8] In *The Fate of Place*, Edward Casey has demonstrated how integral medieval philosophical thought concern-

pp. 7–24; Keith Moxey, "Perspective, Panofsky, and the Philosophy of History," *New Literary History* 26.4 (1995): pp. 775–786.

7 In many ways Panofsky's use of Cassirer's "symbolic forms" was in response to Alois Riegl's concept of the *Kunstwollen*, which Panofsky was addressing more or less explicitly in these and other contemporaneous texts. See especially Wood, "Introduction;" Katharine Lorenz and Jas'Elsner, "The Genesis of Iconology," *Critical Inquiry* 38.3 (2012): pp. 483–512; Lorenz and Elsner, "Translator's Introduction," and their translation of Panofsky's "On the Relationship of Art History and Art Theory: Toward the Possibility of a Fundamental System of Concepts for a Science of Art," *Critical Inquiry* 35.1 (2008): pp. 33–71; originally published as "Über das Verhältnis der Kunstgeschichte zur Kunsttheorie," *Zeitschrift für Ästhetik und allgemeine Kunstwissenschaft* 18 (1925): pp. 129–161; Allister Neher, "How Perspective Could Be A Symbolic Form," *The Journal of Aesthetics and Art Criticism* 63.4 (2005): pp. 359–373; Panofsky, "The Concept of Artistic Volition," trans. Kenneth J. Northcott and Joel Snyder, *Critical Inquiry* 8.1 (1981): pp. 17–33; originally published as "Der Begriff des Kunstwollens," *Zeitschrift für Ästhetik und allgemeine Kunstwissenschaft* 14 (1920): pp. 321–339.

8 The bibliography on "place" and "space" is too vast to survey here. See especially, Paul Zumthor, *La Mesure du Monde: Représentation de l'espace au Moyen Âge* (Paris 1993); Edward Casey, *The Fate of Place: A Philosophical History* (Berkeley 1998); and the essays in *Construction de l'espace au Moyen Age: pratiques et representations* (Paris 2007).

ing tridimensional place was in the historical arc from Aristotelian, two-dimensional surface containment (i.e place) to infinite extension or abstraction (i.e space in our modern sense). According to Casey, during the long Middle Ages philosophers provided important contributions to the problem of infinite space – formulated explicitly *per se* in the early modern period. As the epigraph to this essay suggests, for medieval Christianity this tradition dates as far back as Augustine, who in arguing against the notion that God was containable in a place inherited the idea that place was a tridimensional space occupied with bodies from Neo-Platonists like Plotinus.[9] This idea, *pace* Aristotle, was picked up and quoted verbatim by Peter Lombard in the *Liber sententiarum*,[10] from which the definition of place as extension in three dimensions emerged in scholastic thought. Although it would never carry the same purchase as Aristotle's doctrine of place, it remained a conceptual possibility throughout the Middle Ages, and importantly linked the concepts of place and space to bodies.[11]

The debates regarding tridimensional place revolved around the potentiality of infinite space in relation to God's infinity and uncontainability – i.e. God was not a body and was not contained in a place; God existed everywhere and was uncircumscribable. The epitome of God's infinity and placelessness recurs in a metaphor on the sphere: "*Deus est sphaera infinita, cuius centrum est ubique, circumferential nusquam*" ("God is an infinite sphere whose center is everywhere and circumference nowhere"). Although the conceptual possibility of infinite space emerged most forcefully in scholastic thought after Bishop Etienne Tempier's infamous Parisian condemnations of 1277,[12] this dictum first appeared in the *Liber XXIV philosophorum* – a book attributed to Hermes Trismegistus in the Middle Ages (though most likely written by the early Christian Neo-Platonist Marius Victorinus, b. 300).[13] The earliest medieval commentary on this passage dates to Alan of Lille's *Sermo de sphaera intelligibili* (c. 1177/1179).[14] In this text, Alan transformed God's infinity into God's intelligibility, something he believed the human observer could perceive through divine providence, by reworking the passage to read "*Deus est sphaera intelligibilis cuius centrum ubique, circumferentia nusquam*" ("God is an intelligent

9 Plotinus, *Ennead* V, LCL 444, ed. and trans. A.H. Armstrong (Cambridge, Mass. 1984).

10 Peter Lombard, *Sententiae in IV libris distinctae*, bk. 1, dist. 37, ch. 9 (Grottaferrata 1971–1981).

11 On this see Edward Grant, *Much Ado About Nothing: Theories of Space and Vacuum from the Middle Ages to the Scientific Revolution* (Cambridge 1981), pp. 19–23.

12 *Chartularium Universitatis Parisiensis*, vol. 1, ed. H. Denifle and E. Châtelain (Paris 1889), pp. 543–558.

13 The *Liber XXIV* consists of definitions of what God is in a pseudo-dialog among twenty-four philosophers. See Hermes Latinus, *Liber viginti quattvor philosophorum*, ed. Francoise Hudry, CCCM 143A (Turnholt 1997).

14 Alan of Lille, *Literary Works*, ed. and trans. Winthrop Wetherbee (Cambridge, Mass. 2013), pp. 2–19.

sphere whose center is everywhere and circumference nowhere"). Many other writers picked up this trope, including Thomas Aquinas and Dante.[15]

Despite lively debates regarding God's infinity in scholastic circles in the thirteenth century,[16] the possibility of God as infinite sphere was only reconceived as such for the first time since the fourth century by Thomas Bradwardine in *De causus dei* (1340s)[17] and more famously by Nicholas of Cusa in *De docta ignorantia* (1440s).[18] For both writers God's infinity naturally led to the concept of the infinite universe and humankind's place therein; this was built into the metaphor itself, in all its manifestations, since the fourth century. As Karsten Harries and Edward Grant have both argued, this was not a proto-modernist point of view anticipating Giardano Bruno, Descartes, *inter alia*, but deeply linked to medieval theological speculations on God's omnipotence:

> The metaphor of the infinite sphere presupposes an understanding of God and man which had to lead men beyond the medieval cosmos. A deep historical and systematic connection links medieval mysticism to the new cosmology. Unless this connection is recognized, the work of a thinker like Cusanus will seem a curious hybrid of still medieval theological discussions and some very modern epistemological and cosmological speculations. This, however, is a false dichotomy. In Cusanus' writings the two are closely joined; theology leads quite naturally to cosmology.[19]

Therefore, equally important to the history of place and space was an individual's relationship to the divine and their place in the world and cosmos. And it is particularly humankind's place in the medieval world that gets overshadowed in the history of space and the cosmos. As Casey understands it, "place has been assimilated into space. The latter, regarded as infinite extension, has become a cosmic and extracosmic Moloch that consumes every corpuscle of place to be found within its greedy reach."[20] This is

15 The most complete account of the recurrence of this metaphor can be found in Dietrich Mahnke, *Unendliche Sphäre und Allmittelpunkt* (Halle 1937).

16 See for instance, Thomas Aquinas, *Summa Theologiae*, Prima Pars, Questio 7: "Post considerationem divinae perfectionis, considerandum est de eius infinitate, et de existentia eius in rebus, attribuitur enim Deo quod sit ubique et in omnibus rebus, inquantum est incircumscriptibilis et infinitus."

17 Thomas Bradwardine, *De causa Dei*, bk. 1, cap. 5 (Frankfurt a.M. 1964), pp. 175–180.

18 Nicholas of Cusa, *Opera Omnia*, vol. 1, bk. 1, cap. 23, and bk. 2, cap. 11 (Leipzig 1932), pp. 46–47, 99–103.

19 Karsten Harries, "The Infinite Sphere: Comments on the History of a Metaphor," *Journal of the History of Philosophy* 13.1 (1975): pp. 5–15, p. 6, cf. Grant, *Much Ado About Nothing*, p. 139.

20 Casey, *Fate of Place*, p. x.

a complicated transition where "a preoccupation with place gradually gives way to a stress on space"; while space signifies something "undelimited and open-ended," place is concerned with limit, boundaries, and location. This transition understands God's limitlessness as part of a Christian worldview: "Divine ubiquity thus entails spatial infinity," as Casey puts it, which began as theological speculation.[21]

The consequence of this assimilation can be felt in many ways because place carries diverse meanings which all revolve around the relationship between bodies, movement, and location: philosophically, the assimilation of place to space can signal the loss of individual selfhood and/or community to universal abstractions. Individuation was a metaphysical point that has deep roots in ancient and medieval philosophy, particularly in relation to the concept of place. To take just one example from a long tradition, according to theories of accidental individuation, as Peter King has commented, an individual is constituted in its individuality through all its accidents, or non-essential features.[22] This Aristotelian theory had its proponents in the early Middle Ages in Boethius (d. 524) and his later commentators, Odo of Tournai (d. 1113) and Thierry of Chartres (d. c. 1156), among others.[23] One accident that could constitute individuality, according to Boethius and commentators, was place, or the spatio-temporal coordinates where an individual is located. In *De Trinitate* (c. 520), Boethius made the point explicitly that no two bodies will occupy the same place – "*duo enim corpora unum locum non obtinebunt*" – which according to Peter King "underwrites the individuality of a material object" as a relational theory of place between individual and object.[24]

Moreover, the importance of place in the formation of medieval religious communities has been well documented. Peter Brown, for instance, has explained the importance of place and its particularities in the early Christian period.[25] Brown describes how a particular place – a shrine, a church, a house – engendered pilgrimage primarily because of the proximity to the presence of a saint located therein, which in turn provided the groundwork for the formation of strong communal bonds through trekking long distances. Both proved vital to the early church's legitimization and extension across Western Europe and throughout Byzantium, and both continued to

21 Ibid., p. 77.

22 Peter King, "The Problem of Individuation in the Middle Ages," *Theoria* 66 (2000): pp. 159–184.

23 On the Boethian commentators, see Jorge J. E. Gracia, *Introduction to the Problem of Individuation in the Early Middle Ages* (Washington, DC 1984).

24 King, "The Problem of Individuation," p. 165: "So stated, this medieval view has obvious affinities with the modern identification of individuals with space-time worms (the path traced out in the four-dimensional space-time continuum)." For Boethius, quoted in King, see *De Trinitate* 1.24–31, in *De consolatione philosophiae: Opuscula theological*, ed. Claudio Moreschini (Munich 2005).

25 Peter Brown, *The Cult of the Saints: Its Rise and Function in Latin Christianity* (Chicago 1981), p. 86.

serve the church as it expanded during the later Middle Ages. It should come as no surprise then, that by the end of the eleventh century Western Europe saw a rise in public forms of art for an ever growing audience.

Despite the importance of place in the Middle Ages, a similar assimilation from place to space can be felt in art historical writing as well. Since the early twentieth century, perspective, specifically the ascent of centralized one-point perspective in Italy, has been the predominant *topos* for the study of spatial representation in premodern art and the relationship between subjects and objects; a *topos*, I argue, that has hidden the important relationship between bodies, movement, and particular locations from view.[26] This is to say the important, nuanced tension between place and space developed by medieval thinkers is absent from art historical accounts of perspective – accounts that typically favor the logic of the pictorial space over historical topographies of beholding.[27] The most enduring accounts of this type of art historical writing occurred in Erwin Panofsky's work of the 1920s, specifically, in section three of *Perspective as Symbolic Form* and in the introduction to *Die deutsche Plastik* (1924). In these works, Panofsky critically reflected on stylistic change in the Middle Ages in relationship to the history of perspective by conceptualizing distinct periods from the sixth century to the fourteenth in terms of Hegelian advances and losses, or what he termed "recoils" (*Rückkehr*) in the representation of space.[28] Each stage in this stylistic teleology has a parallel development in the philosophy of space (and I would, add, place), from Plato to the scholastic revival of Aristotle, and finally to a modern epistemology of space voiced by Giordano Bruno. Panofsky explained this history according to a relationship between, on the one hand, surface and depth, and on the other, bodies and space.

As medieval art advanced through the centuries, the distance from antique perspective created what he called "problems" that required creative answers to solve. Perhaps the most important problem was how to represent bodies in a boundless space – i.e.

26 While Kemp, for example, in *Die Räume der Maler* is concerned with the relationship between bodies, movement, and points of view from within the paintings themselves, I am interested in finding productive ways to foreground what takes place (or what theoretically could have taken place) between the picture and the beholder in their shared physical environment.

27 Important exceptions to this trend are, among others, David Summers, *Real Spaces: World Art History and the Rise of Western Modernism* (London 2003); Jules Lubbock, *Storytelling in Christian Art from Giotto to Donatello* (New Haven, Conn. 2006); Rebecca Zorach, *The Passionate Triangle* (Chicago 2012); Jacqueline E. Jung, "The Kinetics of Gothic Sculpture: Movement and Apprehension in the South Transept of Strasbourg Cathedral and the Chartreuse de Champmol in Dijon," in David Ganz and Stefan Neuner, eds., *Mobile Eyes: Peripatetisches Sehen in den Bildkulturen der Vormoderne* (Munich 2013), pp. 132–163.

28 Panofsky, *Perspective as Symbolic Form*, pp. 47–66; and Panofsky, *Die deutsche Plastik*, pp. 1–68. See also Wood's "Introduction," pp. 18–24.

infinite and homogenous – and to regain a sense of three-dimensionality, which was the goal of western art since the early Christian period. As he understood it, "the art historical mission of the Middle Ages was to blend what was once a multiplicity of individual objects (no matter how ingeniously linked to one another) into a true unity."[29] Panofsky argued that medieval art lost sight of perspectival illusionism in favor of surface values. The perspectival idea evident in late antique painting disappeared from sixth-century mosaic work. Panofsky used the *Sacrifice of Isaac* mosaic in the church of San Vitale, Ravenna (540s) as a prime example of this spatial annihilation in the perspective essay (in *Die deutsche Plastik* he does not illustrate any Byzantine art but it plays an important role nonetheless).[30] In this mosaic, he argued, the surface is no longer a window through which we see, as it was once conceived in late Roman wall painting, but is now filled with objects and bodies oriented toward the surface in a shallow field. The pictorial field is unified on the surface, not in spatial depth, through light and shadow, color and gold. It is what Panofsky described as an "immaterial, but unbroken tissue," or a "diaphanous veil" (*einem diaphanen Schleier*).[31] This early Christian system of unity finds an epistemological counterpart in the Neoplatonic view of space offered by Proclus of Athens (c. 411–485): "space is nothing other than the finest light." It is dimensionless.[32]

The next step toward "modern" space was, according to Panofsky, "the refashioning of the world into a substantial and measurable world."[33] Forms might suggest space in medieval representational models, but they do not encompass it. From this point forward, public monumental art – especially sculpture – plays a critical role in this refashioning. In *Die deutsche Plastik*, Panofsky explains how reliefs negotiate the relationship between surface and depth and bodies and space, either by being attached to an architectural background as individual objects, or by emerging from the background surface. He built from his analysis in *Perspective as Symbolic Form* to develop a history of medieval art that anticipates the freeing of space from surface. For instance, Romanesque art flattened antique illusionism in ways that Byzantine art did not (Byzantine art held onto

29 Panofsky, *Perspective as Symbolic Form*, p. 47; and see Panofsky, *Die deutsche Plastik*, p. 11: "Demgegenüber ist, wie schon gesagt, das abendländische Mittelalter bestrebt gewesen, der Kunst die seit dem Ausgang des Altertums verlorene Dreidimensionalität und Substantialität zurückzuerobern."

30 On the mosaic program at San Vitale, see most recently Deborah Mauskopf Deliyannis, *Ravenna in Late Antiquity* (Cambridge 2010), pp. 236–250.

31 Panofsky, *Perspective as Symbolic Form*, pp. 48–49; Panofsky, *Die deutsche Plastik*, p. 8: "[...] bis zu einem gewissen Grade preisgab und diesen mit jenem zu einer unsubstantiellen, gleich einem diaphanen Schleier über die Fläche hingebreiteten Bildschicht verwob." My translations of *Die deutsche Plastik* are modified from Mahonri S. Young's unpublished typescript (1940) held in the library at the Institute of Fine Arts, New York University.

32 On Proclus of Athens, see Casey, *Fate of Place*, pp. 91–93.

33 Panofsky, *Perspective as Symbolic Form*, p. 49.

a vague sense of antique perspective in the frequent display of landscape and architecture); it brought to full maturity what he called the "mass-style" (*Stil der Masse*) in which figure and ground are of the same material.[34]

Between the tenth and twelfth centuries there was a complete annihilation of spatial illusionism. Panofsky claimed: "surface is now merely surface, that is, no longer even the vague suggestion of an immaterial space"; sculpture creates an "indissoluble" unity between bodies and space, i.e. the background surface. The Romanesque relief figure "grows" out of the wall; sculpture has three-dimensionality but is not fully formed, which Panofsky argued is in stark contrast to the sculpture-in-the round of antiquity, where bodies exist in tridimensional space or place, independent from surface.[35] Here Panofsky identified a moment in the stylistic history in which bodies and surface are bound to each other. The art of the Romanesque is "lacking spatiality"; it is wholly uninterested in the tridimensional space surrounding the monument.[36] He illustrated this principle with jamb figures in northern Italy that appear around 1130 in the workshop of Niccolò of Ferrara. Panofsky held these examples, such as the prophets and the *Annunciation* group from Ferrara cathedral (c. 1135) (fig. 2), in contrast to more or less contemporaneous Gothic sculpture in northern France and Germany in which for the first time since antiquity he saw bodies freed from surfaces.

From this moment in the mid-twelfth century, following the development of sculpture according to the lines of Panofsky's argument, artists must make space grow along with the body *via* effects of light and shadow, or in actual three-dimensions. Sculpture performed this liberation most vigorously in Gothic art beginning with the jamb figures on the west façade of Chartres cathedral (c. 1150), which are developed outward from the block-like statues. Figures are no longer consubstantial with the wall. Although connected in certain ways (i.e. they are not freestanding), statues begin to "reemerge" out of walls as independent structures and relief figures begin to "resolve into the ground" like freestanding sculptures.[37] Once this occurs, the emancipation of space from the surface

34 Panofsky, *Die deutsche Plastik*, p. 13.

35 Panofsky, *Perspective as Symbolic Form*, pp. 49–52; and Panofsky, *Die deutsche Plastik*, pp. 25–26: "Wie die Figuren der Externsteine als eine unmittelbare Ausgestaltung des gewachsenen Felsens sich darstellen, so ist ganz allgemein das mittelalterliche Relief ausgestaltete Wand ..."

36 Panofsky, *Die deutsche Plastik*, p. 46: "[...] jedwede Gemeinschaft mit einem umgebenden Freiraum abzulehnen, so daß die Welt der romanischen Kunst der Welt der spätantik-altchristlichen gegenüber zwar eine festere und sozusagen dichtere, zugleich aber eine enträumlichte gewesen war."

37 Panofsky, *Perspective as Symbolic Form*, p. 53. Panofsky does not fully illustrate his argument in the perspective essay, but the same line of thought is followed almost verbatim, in *Die Deutsche Plastik*, which is more fully fleshed out with specific examples. See pp. 34–35.

2 Niccolò, *Daniel*, c. 1135, jamb relief, west façade, Ferrara cathedral.

follows; space is now delimited and assigned, like a statue underneath its baldachin, or in relief, in the stage-like space of the *Raumkasten* found at Naumburg.[38] Panofsky described this space as "innately capable of unlimited extension," a step toward actual infinity and "modern space" he identified with the reinterpretation of Aristotle's doctrine of space after the condemnations of 1277.[39] Finally, according to Panofsky, beginning in the fourteenth century, a coherent "modern" perspectival space reappears as an extension of the *Raumkasten*. In Giotto's frescoes and the large-scale altarpieces of Duccio and Ambrogio Lorenzetti a comprehensible spatial setting emerges in which bodies occupy space in a modern sense. What he called a projection of the *Raumkasten* seen in Naumburg appears in the frescos of Giotto in Padua where closed interiors reemerge for the first time since antiquity (fig. 1). It is important to note a painter's adoption of relief's formal strategies of spatial expansion spurred "a revolution in the formal assessment of

38 In *Die deutsche Plastik* Panofsky uses the terms *Raumstück* and *Raumkompartimente* to similar effects.
39 Panofsky, *Perspective as Symbolic Form*, pp. 53–54.

the representational surface."[40] This revolution marked the beginning of the evolution of perspectival space from the more or less correct experiments of the Trecento, to the construction of a geometrically "correct" space invented in the fifteenth century.

What is missing from Panofsky's account of space is the historical beholder's place in this relationship. Rarely in *Die deutsche Plastik* do beholders enter the discussion. When they do it is in relationship to the differences between Gothic spatiality and "real" pictures (*wirkliches Bild*), i.e. the perspectivally correct paintings of the Renaissance, which removed the stage-like space of medieval depiction and replaced it with a seemingly boundless space to look into. Similarly, in *Perspective as Symbolic Form*, it is only with the advent of "modern" centralized perspective that a beholder finds a point of view, one ironically controlled and stabilized by the geometrical exactness of the process itself.[41] Prior to this, beholders seemingly had no points of view.[42] But of course they did, and, in fact, monumental art of the Middle Ages encouraged beholders to take up multiple standpoints. This is one of the problems with the perspective paradigm as it stands: it does not account for bodies in space or for the tension between representation and reality that can be bridged by understanding the subtle ways in which the art of the Middle Ages encouraged participation from the beholder outside of the pictorial frame. But if we expand the definition of perspective offered by Panofsky (*inter alia*) to include the places for which these images were made, we can closely consider how the dynamic encounters between beholders and images in the Middle Ages were similarly inscribed into the representational model.

In this regard, I suggest that the visual relations between beholders and public art speak to a formation of an individuated place. Monumental sculpture marked out localized points of view that designate the distance and proximity between image and beholder. At some sites, this place is mapped out according to precise geometrically

40 Ibid., p. 55.

41 Panofsky, *Die deutsche Plastik*, pp. 48–49.

42 Importantly a parallel argument is made concerning the recognition of individual points of view in philosophical accounts of space and the cosmos. Specifically, it is argued that Nicholas of Cusa was the first to recognize one's own point of view as importantly different than others, thus gaining objectivity and "perspective" about one's place in the world. The problem with this model, however, is that it ignores the vast amounts of material from the Middle Ages that establish the importance of viewpoints, or standpoints, in relationship to objects, people, or the divine. Two traditions where this carries immense weight are the history of optics and cosmology. On Cusa and perspective, see Harries, "The Infinite Sphere," and Michel De Certau, "The Gaze of Nicholas of Cusa," trans. Catherine Porter, *Diacritics* 17.3 (1987): pp. 2–38. On medieval viewpoints and the relationship between the history of art and optics, see Christopher R. Lakey, "To See Clearly: The Place of Relief in Medieval Visual Culture," to be published in association with the symposium *Science, Ethics, and the Transformations of Art in the Thirteenth and Fourteenth Centuries* convened at the Clark Art Institute in September 2013.

measured sightlines that could result in the beholder experiencing an instance of heightened illusionism; at other sites, certain formal features of the monumental images are actualized, or reenacted, by a beholder's movement through specific topographies. In both accounts public art demands something of the beholder; beholders do not simply and always stand still and behold. What is critical to reading monumental art in the Middle Ages as distinct cases of individuated places, or standpoints, is that in each instance any beholder who occupied these standpoints had an individuated visual experience. That is to say, a beholder's experience of a painting or sculpture will be different from another beholder's depending on the standpoint.[43] The concept of individuated point of view plays off both aspects of the medieval understanding of place, the ontological and the communal. On the one hand, once constituted as an individual through particular features or characteristics, the place one embodies is one's own. On the other hand, because a beholder's relationship to the divine, mediated through objects and pictures, is dependent on standpoints this relationship can forge communal experiences through liturgical exercises, religious celebrations, and civic festivals.

Raumkästen and the Moving Spectator

In the remainder of this essay, I will look at specific examples of monumental, public art in Italy from the twelfth through the fourteenth century and consider how perspectival relations based on distance, standpoint, and scale operated in part to envelop beholders into the formal structure of the image field, that is to its architectonic set up or support (e.g. a façade, pulpit, wall). The image field should be understood in concert with the externalization of the *Raumkästen*, or the delimited areas in which beholders move in response to specific images inside sacred spaces or at their threshold in the public realm. In this way, it is possible to understand paradigmatic medieval ideas concerning place and space through the images and their intended audiences. An important example of this interrelation can be seen at the Ferrara cathedral (fig. 3).

Constructed for the west façade in 1135, the tympanum relief of *St. George Killing the Dragon* designed by Niccolò and his workshop is one of the earliest calculated examples of perspectival naturalism in monumental sculpture during the Middle Ages. Viewed

43 This is a critical theoretical position in visual culture studies. See Whitney Davis, *A General Theory of Visual Culture* (Princeton 2011), p. 319: "Visuality is not the collective seeing of a social group, though it has sometimes been treated that way. In human forms of life within the human life-form, the group does not have only one pair of eyes. Visuality is the seeing of each human agent [...]."

3 Niccolò, c. 1135, west façade, Ferrara cathedral.

from the threshold of the church's projecting porch (fig. 4), the image is a virtuoso balancing act of two- and three-dimensional modes of representation. Three distinct planes retreat into depth; the highest point is marked by the saint's right side, which projects the furthest from the block, while George's shield and halo define the deepest recesses of the relief. The dragon serves as the picture's middle ground, existing between the front and back planes defined by the actual mass of the horse and saint. Yet between these points, there are only slight differences in spatial planes. For instance, the difference between the horse's body and the background space is four inches, and the space between George's body and the horse's is only half an inch. Even though these variations seem minimal, through the occlusion of forms they establish the planes of the relief. When viewed from the ground – from the vantage point of an embodied beholder – the bodies of St. George and the horse project robustly from the surface, giving the illusion

4 Niccolò, *St. George Killing the Dragon*, c. 1135, tympanum relief, west façade, Ferrara cathedral.

of full corporeality and proportionality. Here the saint's face and body assume the idealized appearance of Ferrara's chivalric protector, the victorious Christian hero.

The depiction of St. George announces the presence of the martyr saint, which was contained just beyond the doors of the cathedral in the form of a newly acquired relic from the Holy Land. The relic established the cathedral as an important place of interaction between townspeople, pilgrims, and returning crusaders.[44] A crucial aspect of St. George's importance as a relief sculpture was its public location. Niccolò designed the tympanum relief to be viewed within an architectural form particular to medieval sites in northern Italy, the *protiro*: an enclosed, double-storied projecting porch.[45] The porch protects and focuses attention onto the sculptural program, and in this specific case, the boundaries of the porch established the dimensions Niccolò needed to design the figure of St. George using optical refinements. The porch measures seventeen feet in length, beginning at the portal and continuing to the steps, and seventeen feet in width from

44 On the relationship between the relic of St. George and the cathedral, see Christine Verzár, "The Artistic Patronage of the Returning Crusaders: The Arm of St. George and Ferrara Cathedral," in Arturo Calzona et al., eds., *Immagine e Ideologia. Studi in onore di Arturo Carlo Quintavalle* (Milan 2007), pp. 240–247.

45 On the *protiro* in northern Italy, see Christine Verzár Borstein, *Portals and Politics in the Early Italian City-State: The Sculpture of* Nicholaus *in Context* (Parma 1988).

the exterior of each lion.[46] The size of the porch was based on the module used to design the interior plan.

This measure is important because it helps to create an ideal viewing angle. When an observer stands at 17 feet from the door, at the threshold of the porch, an image of the entire tympanum sculpture comes into view at a forty-five degree angle of vision. From here, both the saint and the lintel decoration are fully legible. These measurements, in turn, allowed Niccolò and his team to plan the sculptures with certain geometric theorems in mind, something scholars fail to consider. For instance, views based on consistent angles of vision were measured in relation to the portal and the space of the porch; the elongation of forms to compensate for foreshortening could have been planned and executed according to current optical theory and practical geometry.[47] Niccolò emphasized the study of spatial and proportional relations between objects and beholders at the design stage, as he certainly had knowledge of practical and theoretical geometry, which was widely taught in schools during the twelfth century and likely part of workshop training. Before the thirteenth century, geometric texts were based on Boethius's translation of Euclid's *Elements*, excerpts from *agrimensores* texts (Roman land surveying texts), and often included a section on the *abacus*.[48]

Important texts from this tradition include Hugh of St. Victor's *Practica geometriae* (c. 1120). Hugh's study was based on the geometric treatises of Gerbert of Aurillac (c. 980) and the so-called *Geometria Incerti Auctoris*, both of which have strong manuscript traditions in Italy as well as north of the Alps.[49] According to Hugh: "theoretical geometry uses sheer intellectual reflection to study spaces and intervals of rational dimensions. But practical geometry uses instruments, and gets its results by working proportion-

46 All of these measurements are based on my fieldwork at Ferrara. On the archeological fabric of the medieval cathedral, see Guido Castagnoli, *Il Duomo di Ferrara* (Ferrara 1895).

47 The optical refinements at Ferrara can be seen most clearly by comparing photographs of *St. George* taken from an elevated, direct line of sight. I expanded on of these procedures in my book, provisionally titled *Sculptural Seeing*.

48 This type of instruction was common from the ninth through the twelfth centuries, before abacus schools became more and more popular from the thirteenth century onward. On the history of geometric treatises in the early Middle Ages, see Menso Folkerts, *"Boethius" Geometrie II: Ein mathematisches Lehrbuch des Mittelalters* (Wiesbaden 1970); and Ann E. Moyer, "The Quadrivium and the Decline of Boethian Influence," in Noel Harold Kaylor, Jr. and Philip Edward Phillips, eds., *A Companion to Boethius in the Middle Ages* (Leiden 2012), pp. 479–518.

49 Hugh of St. Victor, *Practical Geometry*, ed. and trans. Frederick A. Homann, S.J. (Milwaukee 1991), p. 33, and *Hugonis de Sancto Victore Opera propaedeutica: Practica geometriae, de grammatical, epitome dindimi in philosophum*, ed. Robert Baron (South Bend, Ind. 1966). For the manuscript tradition of the early geometrical treatises, see *Gerberti postea Silvestri II papae Opera Mathematica (972–1003)*, ed. Nicolaus Bubnov (Hildesheim 1963), and Lucio Toneatto, *Codices Artis Mensoriae: I Manoscritti Degli Antichi Opuscoli Latini D'Agrimensura (V-XIX Sec)*, vol. 1, *Tradizione Diretta il Medioevo* (Spoleto 1994–1995).

ally from one figure to another."[50] The most likely instrument Niccolò used to calculate these proportional relationships would have been the surveyor's rod (*virga mensuralis*) – a tool used to measure distances and heights between things and people. Hugh mentions this instrument, as well as the quadrant, which were frequently used by surveyors and architects.[51] To designate the height and distance from which St. George should be viewed, Niccolò applied a technique that geometric handbooks like Hugh's noted: namely, that the relationship between people and the objects they see from below generates a "triangular form" (*trianguli formam*), "from the spot where sight first perceives the object rising in the distance."[52] The triangle's perpendicular side is the height of the object, with the ground level as its base. The angle of vision is determined by the height of the individual and the distance between himself or herself and the object. The manipulation of forms in order to appear correct or more natural within this "visual triangle" (*trigonus*) was likely part of the planning process at Ferrara. Since the figures would not have been carved directly on the porch, once installed in the tympanum, the saint's pudgy face and awkward body would resolve optically into more natural forms, giving St. George a dignified and noble appearance.

Through geometric procedures like those described above, Niccolò highlighted the relief's iconic and narrative qualities through carving techniques that balanced the real and pictorial depth of the figure. He could suggest the saint was a heroic figure, brought to life by addressing beholders on the ground in two distinct ways. Depending on where an observer is located within the porch, St. George is either presented as a an iconic figure, as the sculpture was in part based on the format of Byzantine icons, or as part of a larger narrative. A lateral sweep of the porch from left to right highlights the narrative function of the relief, which was one of the earliest depictions of George on horseback in Italy.[53] In this instance the important triadic relationship between beholder, image, and place is exploited for ideological gain and aesthetics. Closed most of the year, the portal of St. George was ceremonial and contained the central message of the cathedral as a monument of victory. The new cathedral had been constructed as a way to break from

50 Hugh of St. Victor, *Practical Geometry*, p. 33; *Practica geometriae*, p. 16: "Theorica siqidem est que spacia et intervalla dimensionum rationabilium sola rationis speculatione vestigat, practica vero est que quibusdam instrumentis agitur et ex aliis alia proportionaliter coniciendo diiudicat."

51 On the relationship between land surveying and architecture, see Marvin Trachtenberg, *Dominion of the Eye: Urbanism, Art, and Power in Early Modern Florence* (Cambridge 1997), pp. 223–232.

52 Hugh of St. Victor, *Practical Geometry*, p. 39; *Practica geometriae*, p. 24: "Ex eo namque loco ubi prospectus primum emergentem eminus altitudinem comprehendit."

53 Other authors have pointed this out. See Verzár Borstein, *Portals and Politics*, pp. 95–97, and Ittai Weinryb, "The Inscribed Image: Negotiating Sculpture on the Coast of the Adriatic Sea," *Word & Image* 27.3 (2011): pp. 322–333.

the imperial bonds of the Church of Ravenna, something Ferrara was able to do with the assistance of the Papacy in the 1130s. In this way, *St. George* stands victorious over the defeated enemy of Ferrara; and the relief was meant be understood both spiritually and politically given the context of the appearance of George's relic in Ferrara after the First Crusade. The public image that Niccolò and his workshop took pains to devise in 1135 is one that the Commune of Ferrara continues to preserve and uphold.[54]

This area, so clearly measured off to include idealizing views of the saint throughout, also accommodates views of other figures. Moving from the larger tympanum relief to the outer sculptures, the figures of the prophets and saints structure the place of an observer somewhat differently. Mary and the Angel Gabriel do not look at each other across the portal (as one would expect in depictions of the *Annunciation*). Rather, they look down and out, animating the "space-box" and communicating with beholders therein. Similarly, the jamb prophets (Jeremiah and Daniel on the left, and Isaiah and Ezekiel on the right) all activate a visual encounter by introducing different sightlines and modes of engagement within the carefully constructed place. The figures each hold their scrolls out for observers in this area to read, and their prophecies were meant to be seen and understood by the public, or at least by some. The scrolls carried by each prophet likely refer to a liturgical drama based on Pseudo-Augustine's *Ordo prophetarum* and readings from the mass.[55] Like Gabriel and the Virgin, the prophets do not address each other. Rather, they look out into the "space-box" structuring a dynamic encounter between observers and holy figures. Finally, the Telamones, who so arduously support the lintel, look directly down into the place beneath them and greet spectators as they move toward the portal.

Preserved to this day, the Ferrara cathedral remains a rare example of an intact twelfth-century monument in which sculpture seems wholly united and interested in its surrounding architectonic space, *pace* Panofsky, and it is not a solitary specimen. I have located traces of similar techniques at other sites designed by Niccolò in northern Italy, and by different workshops elsewhere. For instance, Niccolò also designed the sculptural program for the Abbey church of St. Zeno in Verona (c. 1138), where we again find a proportionally squared porch measurement mirroring the architectural module

54 For example, in 1924 the Commune of Ferrara began to renovate the cathedral, including the west façade and the area around the porch. However, the sculptural program was not altered, preserving its medieval origins. See, Cinzia Piccinini, "Scoperte e Scavi a Ferrara nell'Ottocento e nel Novecento," in Anna Maria Visser Travagli, ed., *Ferrara nel medioevo: Topografia storica e archeologica urbana* (Casalecchio di Reno 1995), pp. 75–79.

55 On the iconography and liturgical significance of the prophet group, see Dorothy Glass "Otage de l'historiographie: l'*Ordo prophetarum* en Italie," *Cahiers de civilization médiévale* 44 (2001): pp. 259–273.

used to design the church's interior, and optical refinements in the tympanum relief when seen from below.[56] In these geometrically ordered and delineated *Raumkästen* we can also see how shared symbolic sources between maker and audience speak to the nuanced relationship between place and space. At Ferrara, the hemisphere signifies the celestial realm, devoid of place and occupied by the divine. The heavenly vision of the martyr St. George is raised above the square bay, symbolizing the earthly realm, the place embodied by medieval beholders.[57] Here, with eyes raised to the divine figures, the vision of St. George manifests itself as a communicable message to beholders below, just as the prophets communicate with scrolls that break the virtual plane of the relief and are titled down into the place occupied by the public.

The interaction inside the "space-box" at Ferrara between beholders and sculpture recalls Bruno of Segni's (d. 1123) statement "truly when the ornament of hope becomes visible, the entire church is raised in contemplation, and elevated from the earthly to the celestial."[58] This metaphor of ascent has real analogies in medieval scientific discourses. In his *Practica Geometriae*, Hugh of St. Victor makes use of surveying technology to measure the visual relationship between humans and objects. In optical treatises from the *perspectiva* tradition, understanding the true nature of an object in sight depends on one's standpoint in relationship to that object and on certain preconditions of vision (i.e. that the object not be too close or too far away, that there be adequate light, etc).[59] Ascending, or raised, eyes is a crucial phenomenon in viewing monumental public forms of art. Yet these architectural relief programs are not the only examples of how the triadic relationship between beholder, image, and place is exploited for ideological or aesthetic purposes. Sculptors working on a smaller scale also controlled the viewing conditions of their work, while emphasizing tensions between medieval concepts of space and place. The two sculptors most adept at this were Nicola and Giovanni

56 On the architectonic history of St. Zeno, see Giovanna Valenzano, *Basilica di San Zeno in Verona: problemi architettonici* (Vicenza 1993).

57 As stated earlier, there is a long textual tradition relating the heavens (i.e. "space") as circles and semi-circles, or spheres, with the divine. Of particular importance for this context were commentaries on Boethius' *De Trinitate* by Pseduo-Bede and Thierry of Chartres, *inter alia*. Further, in geometric handbooks like Pseudo-Boethius' *De geometria*, "place" (*locus*) is specifically described as a square. See for instance MS. Douce 125 (Oxford, Bodliean Library), fols. 5v and 7v.

58 Bruno of Segni, *Sententiarum* (PL 165), bk. II, chap. 12: "Quando vero spei ornamentum manifestatur, tunc tota in contemplationem erigitur, et a terrenis ad coelestia sublimatur." On the relationship between Bruno of Segni and art, see Herbert L. Kessler, "A Gregorian Reform Theory of Art?," in Serena Romano, ed., *Roma e la Riforma gregoriana: Tradizioni e innovazioni artistiche (11.-12. secolo)* (Rome 2007), pp. 25–49.

59 On the conditions of sight, see most recently A. Mark Smith, "Spatial Representation in Medieval Visual Theory," in Tiziana Suarez-Nani and Martin Rohde, eds., *Représentations et conceptions de l'espace dans la culture médiévale* (Berlin 2011), pp. 45–66.

Pisano, who created dynamic modes of address by exploiting tensions between frontal and oblique lines of sight, thus opening up the space of representation to beholders on the ground by focusing attention on certain figures and scenes.[60]

A paradigmatic example of this can be seen in Nicola Pisano's 1260 pulpit designed for the Pisa Baptistery. The Baptistery functioned both as a liturgical space, a vast, circular building symbolizing the heavenly sphere where the sacrament of baptism was performed twice a year, and as a civic place where local confraternities met and, perhaps, where Archbishop Federigo Visconti held a series of Synods between 1258 and 1262, as Eloise Angiola has argued.[61] Much like the building, the rite of baptism took on a dual role; as much as it was a symbolic re-birth into the universal church, it also introduced the neophyte into the particularities of Pisan society. We can understand this conceptual framework of space and place inscribed in the pulpit itself at certain moments, for instance in the panel of the *Presentation in the Temple*. In her analysis, Angiola convincingly pointed out the building in the background, to the left of the central axis, represented as a round, centrally planned structure likely in reference to the very place where beholders stood as witnesses to Simeon's recognition of Christ as Savior.[62] To drive the point home, Nicola invites beholders into the sacred drama by cleverly presenting background figures peering out, over the heads of the frontal figures to meet the audience's gaze. Elsewhere in this program Nicola created dynamic viewing positions not from a frontal, stationary position, but from oblique lines of sight. It is this point of view that a beholder would adopt as she or he moved from left to right, from the first panel, *The Nativity of Christ*, to the second panel, *The Adoration of the Magi* (fig. 5).

From this standpoint, a strong diagonal from bottom left to the Virgin in upper right can be understood most clearly, and the Magi's faces are occluded, while the Virgin and Christ child come into focus. Both seem fully embodied due to the depth of field carving understood from this angle, and they gaze out in the direction of the beholder, casting their eyes over the Magi and into the place of the public. In this way, beholders have the same view of Mary and Christ as the Magi, thus serving as witnesses to the sacred narrative.

Nicola's son, Giovanni, used similar tactics at Pistoia where, through an understanding of the depth of the relief a beholder can enter the spatial and temporal constructions of the panels (fig. 6).

60 On Nicola and Giovanni Pisano, see most recently Max Seidel, *Father and Son. Nicola and Giovanni Pisano* (Munich 2012).

61 Eloise M. Angiola, "Nicola Pisano, Federigo Visconti, and the Classical Style in Pisa," *The Art Bulletin* 59.1 (1977): pp. 1–27, p. 6.

62 Ibid., pp. 9–12.

5 Nicola Pisano, *Adoration of the Magi*, 1260, relief panel, pulpit, Pisa Baptistery.

6 Giovanni Pisano, *Dream of the Magi; Adoration of the Magi; Dream of Joseph*, c. 1300, relief panel, pulpit, Sant'Andrea, Pistoia.

Looking closely at the *Adoration of the Magi* relief from the pulpit designed for Sant'Andrea, Pistoia (rebuilt c. 1300),[63] a void in the foreground allows an observer to access the compositional structure of the three scenes contained in the panel: *The Dream of the Magi, The Arrival and Adoration of the Magi,* and *The Dream of Joseph*. The dream sequences are positioned along the frontal plane, delimiting the space of the panel front-to-back and the narrative temporality between the scenes, acting as both horizontal and vertical frames that encircle the *Adoration*, the liturgical climax of the panel.[64]

63 Sant'Andrea dates to the eight century, but was re-built in the late twelfth or early thirteenth century. On the pulpit, see most recently Peter Dent, "Laude Dei Trini: Observations Towards a Reconstruction of Giovanni Pisano's Pistoia Pulpit," *Journal of the Warburg and Courtauld Institutes* 71 (2008): pp. 121–138.

64 On possible techniques used by Nicola and Giovanni to construct the spatial logic of their relief panels, see the helpful section in Lubbock, *Storytelling in Christian Art*, "Spatial Representation in Sculpture," pp. 86–91. Lubbock is one of a handful of writers that articulates the problems of sculptural viewing in terms of frontal versus oblique lines of sight, and direct lines of sight versus viewing

Once this is understood, the formal logic of the panel can be grasped; the anticipation of movement on the part of the figures in a sweeping, semi-circular motion from bottom left, to upper right, to bottom right, is aided by the reappearance of the angel in each scene. Finally, the movement of the Magi toward the Virgin mirrors the movement of an observer around the pulpit to the next panel.

The determining factor in this relation is the beholder's position inside the church. The push-and-pull between the real depth of the carving and the depicted depth of the image is privileged depending on where the beholder is located at a given moment. For example, if a beholder follows the narrative from left to right, Mary's corporeality grows more apparent as he or she ambulates around the panel – just as in Nicola's Pisan panel. When viewed from a central vantage point it is difficult to understand Mary's literal embracement of Christ, or that Christ is almost fully embodied and in-the-round. However, when seen at an angle that lies on an oblique line of sight, the scene of Christ and Mary transforms into the *Maestà*: they have been removed from the panel's narrative temporality and given their own celestial-spatial niche, a type of *Raumkasten* carved deeply into the block.[65] That the central scene, the *Adoration*, is positioned on a diagonal and most clearly understood from an oblique angle from the ground – as opposed to a frontal view – demonstrates that Giovanni did not envision a fixed body as the ideal viewer.

Understood in this light, how sculptors took control over vantage points in shaping their reliefs takes on new force. The different types of optical corrections and perspective effects used by sculptors all defined dynamic encounters between beholder and sculpted image in ideological and aesthetic terms. These optical adjustments created certain proportional relationships between beholder and object based on distance, size, and scale and played a critical role in shaping the theory and practices of late medieval painting. In addition to the expansion of the *Raumkasten* from sculpted relief to frescoed wall, painters increasingly sought to adopt monumental sculpture's terms to their own practices. Therefore, in my last example I want to consider the important formal and spatial relationships between monumental sculpture and painting in the Arena Chapel.[66]

positions on the ground. Others, *inter alia*, include Trachtenberg, *Dominion of the Eye*, pp. 185–194, and Jung, "Kinetics of Gothic Sculpture."

65 While I generally I agree with Lubbock's account of viewpoints in the work of Giovanni Pisano, I disagree that the initial sight of Mary and Christ is integral to the narrative logic of the panel. It could be argued that the initial sight of Mary and Christ abstracts them from the narrative in formal terms, and it is only by continuing around the panel to the frontal position that any narrative logic can cohere. For his analysis of this panel, see Lubbock, *Storytelling in Christian Art*, pp. 102–107.

66 The bibliography on the Arena Chapel is enormous. For a critical overview after the most recent restoration, see *La Cappella degli Scrovegni a Padova*, ed. Davide Banzato (Modena 2005); and Giuseppe Basile, ed., *Giotto nella Cappella Scrovegni: Materiali per la tecnica pittorica* (Rome 2005).

Much has been written concerning the relationship between Giotto and perspective, specifically on the extension of bodies into spatial depth, the consistent use of vanishing axes, and his knowledge of *perspectiva* and other experimental sciences – which are all important aspects of his privileged place in the history of art.[67] There are, however, other ways in which we can assess the important revolution instigated by Giotto and his followers in terms consistent with the visual models common to the works in monumental sculpture previously discussed. Thus, rather than simply positing Giotto at the beginning of a long history of spatial projection in painting, it is important to consider how he held onto strategies of visual communication based on individuated points of view in an expanded *Raumkasten*. For example, throughout the Arena Chapel there are different types of perspectives in play based on oblique lines of sight and a beholder's standpoint. As Janetta Rebold Benton has pointed out, the frescoes on the east wall orient beholders in similar ways as those on the north and south walls.[68] On the east wall, the *Annunciation*, which spans the chancel arch, has no single point of view, but encourages spectators to move to the right, to the beginning of the pictorial cycle on the south wall through the placement of architectural forms at an oblique angle. Similarly, the frescoes occupying the middle section, the *Payment of Judas* and the *Visitation*, are both set at oblique lines of sight to, again, initiate movement from beholders on the ground around the pictorial cycle. Finally, the illusionistic chapels that occupy the bottom section of the east wall, closest to beholders, are structured more or less according to projective geometry, fixing beholders in the center of the aisle in anticipation of the pictorial cycles having been circumambulated for the final time.[69] Meanwhile, the frescoes on the long walls orient viewers in a number of different ways.

Take the example of the *Last Supper* (fig. 1), located on the south wall, in the lower section of the first bay. Here the orthogonals that define the tridimensional place where

67 The relationship between Giotto and perspective is not limited to the Arena Chapel. It extends to his work in Assisi and Florence as well. See especially, Roberto Longhi, "Giotto Spazioso," *Paragone* 31 (1952): pp. 18–24; John White, *The Birth and Rebirth of Pictorial Space* (New York 1958); Samuel Edgerton, *The Heritage of Giotto's Geometry: Art and Science on the Eve of the Scientific Revolution* (Ithaca 1991). On Giotto and his relationship to the experimental sciences, see most recently Frank Büttner, *Giotto und Ursprünge der neuzeitlichen Bildauffassung: Die Malerei und die Wissenschaft vom Sehen in Italien um 1300* (Darmstadt 2013); and Phillipe Cordez, "Les marbles de Giotto. Astrologie et naturalisme à la Chapelle Scrovegni," *Mitteilungen des Kunsthistorischen Institutes in Florenz* 55.1 (2013): pp. 9–25.

68 See Janetta Rebold Benton, "Perspective and the Spectator's Pattern of Circulation in Assisi and Padua," *Artibus et Historiae* 10.19 (1989): pp. 37–52. Rebold Benton gives serious attention to the idea of mobile viewers in relationship to monumental art, in an essay that has not received enough attention in Giotto scholarship in my view.

69 On the perspective construction of the illusionistic chapels, see Volker Hoffman, "Giotto and Renaissance Perspective," *Nexus Network Journal* 12.1 (2010): pp. 5–32.

Christ and his Apostles are dining – Panofsky's *Raumkasten* – all direct beholders in the direction the narrative moves. However Christ and John are seated in the far left corner of the room, at the head of the table, which directs attention away from the oblique lines of sight established by the architecture. In doing so, Giotto has created tension between the directed movement of beholders, from one scene to the next, and the object of their devotion, Christ. This tension creates a moment of pause, or perhaps contemplation, similar to the ways in which Giovanni Pisano created space for Christ and Mary to exist outside of the narrative temporality. This moment of pause grounds beholders in their own particular place, outside of the pictorial logic of the perspective space. Finally, if we consider that certain scenes were placed in the narrative sequence for beholders depending on specific sight lines we can begin to understand these frescoes as instantiating more than just a new style of painting, in their naturalism, the pathos of the figures, and the format for which Giotto has justly been praised. We can find ways in which the image communicated correct devotional practices to the public on the ground. Take the *Crucifixion*, which is directly opposite the south door – the original door through which the public would enter, as Laura Jacobus has convincingly demonstrated. Here the first thing the public would have seen, by design, was Christ's dying body, splayed out for beholders to contemplate – a symbol of the Eucharistic sacrament they entered the chapel to partake in. But importantly, they would have also been reminded that their devotion was not to the image as such, but to the holy personage, which is made clear by the typological juxtaposition of a smaller painting of the *Brazen Serpent* to its right.[70] What happens on the surface, inside the pictorial space, directly implicates beholders on the ground, enveloping them into complex relationships between space and place, subject and object.

70 The south door was walled up before the consecration in March 1305, as part of negotiations with the neighboring Augustinian hermits of the Eremitani community, though after the frescoes were designed and executed. See, Laura Jacobus, *Giotto and the Arena Chapel: Art, Architecture and Experience* (London 2008), esp. pp. 167–190.